



Sirius Geotechnical Ltd
4245 Park Approach
Thorpe Park
Leeds
LS15 8GB

0113 264 9960
www.thesiriusgroup.com

Mr A Khan
Persimmon (West Yorkshire)
Unit 9
Temple Point
Finch Drive
Colton
Leeds
LS15 9JQ

Date: 22nd May 2025

Our Ref: C7844/GH/10883

Dear Anas,

**Re: Land to the North of Cumberworth Road, Skelmanthorpe
Remediation Verification Letter Report**

Sirius Geotechnical Ltd (Sirius) were commissioned by Persimmon (West Yorkshire) (Persimmon) to report upon remediation verification works at their current residential development located to the north of Cumberworth Road, Skelmanthorpe (the "site"). The development is to comprise 190 No. low rise (two to three storey) houses with private gardens, associated areas of hardstanding, soft landscaping, estate roads and areas of public open space (POS), in accordance with Persimmon's Proposed Planning Layout drawing ref. CRSK-2018-001 Rev M, a copy of which is included within Attachment A.

The site has been previously subject to investigation and assessment by Sirius, as listed below:

- Sirius Geoenvironmental Appraisal Report, report ref. C7844 Rev. B, dated May 2018.
- Updated Ground Gas Risk Assessment Letter Report, letter report ref. C7844/RC/9060, dated 1st October 2019.
- Supplementary Coal Mining Investigation Letter Report, letter report ref. C7844/RC/9149, dated 16th December 2019.
- Remediation Strategy, report ref. C7844/RMS, dated April 2020.
- Verification of Removal of Chemically Unsuitable Topsoil, letter report ref. C7844/GH/10536, dated 12th June 2024.

In addition to the above, a third party consultant has been commissioned by Persimmon to undertake independent verification of gas protection measures installed into dwellings at the site. Reference to gas protection measures and their verification is outside the scope of this letter report.

Background Information

The site comprises an irregularly shaped plot of land, located to the north of Cumberworth Road, in the village of Skelmanthorpe. A site location plan is provided as Drawing No. C7844/01 within Appendix A. The site is irregularly shaped and, prior to development, comprised a number of grassed or roughly vegetated fields, separated by either hedgerows or dry-stone walling with steel gates for access between the two largest fields. In general, the site slopes gently from west to east, with levels of approximately 199m Above Ordnance Datum (m AOD) along the western site boundary, and 188m AOD to the extreme eastern site boundary.

Published geological plans indicate the site to be underlain by strata of the Pennine Lower Coal Measures Formation (LCM), comprising undifferentiated mudstone, siltstone, sandstone and coal seams. An east to west trending fault, with a downthrow to the south, is conjectured centrally through the site. No made ground or superficial deposits are recorded on the site on the published geological maps.

No classified watercourses are located within 500m of the site. There are no recorded surface or groundwater abstractions within 500m of the site. The LCM bedrock beneath the site is classified as a Secondary A Aquifer.

Summary of Previous Reports

Fieldworks forming part of the Sirius ground investigation took place in April 2018 and comprised machine-excavated trial pits, hand dug pits, and the drilling of window sample and rotary open hole boreholes. The investigation identified topsoil across the site to depths of between 0.2m and 0.4m below ground level (bgl). Made ground was encountered beneath topsoil type made ground in one exploratory hole location (TP02), comprising a 0.1m thick layer of orange-brown slightly gravelly sandy clay with rare cobbles of brick. This material was considered to represent reworked natural strata.

Near surface soils were underlain by a variable thickness of natural residual LCM soils, to depths of between 0.4m and 1.85m bgl, grading into LCM bedrock. Eight of the twelve rotary boreholes, located within the northern half of the site, recorded an intact un-named coal at depths of between 5.7m and 6.5m bgl, varying from 0.4m and 0.6m in thickness.

The risk of shallow mine workings posing a risk to surface stability was considered to be low, requiring no further consideration. The possibility of localised crop workings / bell pits within the site however could not be discounted. It was therefore recommended that excavations be examined for evidence of infilled mine entries/pits/crop workings.

The results of chemical laboratory testing did not identify any contaminants of concern, with the exception of elevated concentrations of arsenic detected within localised topsoil encountered within the northwestern most field (with concentrations of between 29mg/kg and 75mg/kg, and a US95 of 53.6mg/kg). The recorded concentrations of arsenic within the topsoil were considered unsuitable for a residential with consumption of homegrown produce end use, compared to the GAC of 37mg/kg.

A re-assessment of the chemical laboratory results indicated that no topsoil samples taken from within the northwestern site area were found to exceed the relevant GAC of 79mg/kg for an informal POS in a residential setting end use. The soils were therefore considered to be suitable for re-use within proposed POS at the site.

Seven topsoil samples tested from the remainder of the site, were recorded with arsenic concentrations of between 11mg/kg and 33mg/kg. The concentrations of arsenic tested from the remainder of the topsoil samples were below the relevant GAC for a residential with consumption of homegrown produce end-use and were considered suitable for re-use.

In addition, two samples of natural subsoil (comprising residual LCM soils) tested as part of the site investigation works were not found to be recorded with any determinants in exceedance of relevant GAC's.

Outline Remediation Requirements

Topsoil within the northwestern most field was recommended to be stripped, stockpiled separately from topsoil from other parts of the site and placed as a growing medium (of minimum 100mm in thickness) within areas of proposed POS. Elsewhere, a nominal 100mm depth of suitable site-won topsoil was recommended to be provided in gardens and areas of soft landscaping to provide a suitable medium for plant growth.

Any materials for use as a growing medium, including site-won and imported material, was to be inspected to ensure that it meets the required specification. It was to be clean and free of foreign debris, building waste materials, timber or other deleterious matter. Any imported materials used within growth media on the site was to be tested in accordance with the Remediation Strategy (report ref. C7844/RMS).

It was considered possible that areas of more significant contamination, not identified to date, may be encountered on site during excavation and construction works. If any areas of noxious, odorous, brightly coloured, fibrous, liquid or other potential contamination were encountered, then further advice was recommended to be sought from a suitably qualified consultant.

Summary of Remedial Works

The localised arsenic impacted topsoil was temporarily relocated as part of enabling works and stockpiled to the rear of plots 108-110, where it was proposed to be placed within an area of POS at a subsequent date. On the basis of the previous chemical laboratory test results, this topsoil was considered suitable for re-use within areas of POS.

Photographic evidence was provided by Persimmon on 16th April 2025 to Sirius pertaining to removal and replacement of the arsenic impacted topsoil. Persimmon indicated that the topsoil had been permanently relocated to an area of POS to the east of the site, as shown on the Remediation Verification Plan, Drawing No. C7844/08, included within Attachment A. Copies of photographs of the relocated arsenic impacted topsoil, as provided by Persimmon, are included within Attachment B of this letter report.

The site won topsoil proposed for re-use within gardens and landscaping elsewhere was assessed by Persimmon and their groundworker prior to placement within plots across the site as a whole, on an ongoing basis. An indicative site won topsoil stockpile location plan is included on the Remediation Verification Plan (Drawing No. C7844/08, included within

Attachment A). The site won stockpiled topsoil was subsequently placed within areas of gardens and soft landscaping, as a suitable growth medium.

Persimmon have confirmed to Sirius that no soils proposed for use as a growth medium have been imported as part of enabling and construction works at the site, and that formation levels within proposed gardens and soft landscaping have comprised natural LCM subsoils. A review of the former site levels and proposed development levels has been undertaken as part of this verification report. It is evident that levels have remained similar to previous, and no significant cut / fill earthworks have been undertaken to achieve current levels. This substantiates the evidence that no imported soils was necessary during the enabling works.

Concluding Comments

On the basis of the foregoing, it is considered that the site has been satisfactorily remediated in accordance with the requirements of the Remediation Strategy, thereby permitting discharge of the relevant planning conditions.

We trust the above and attachments meet with your approval, however should you require further assistance then please do not hesitate to contact us directly.

Yours sincerely



Principal Engineer
For and on behalf of Sirius Geotechnical Ltd.

Attachments	A	Drawings
	B	Photographs



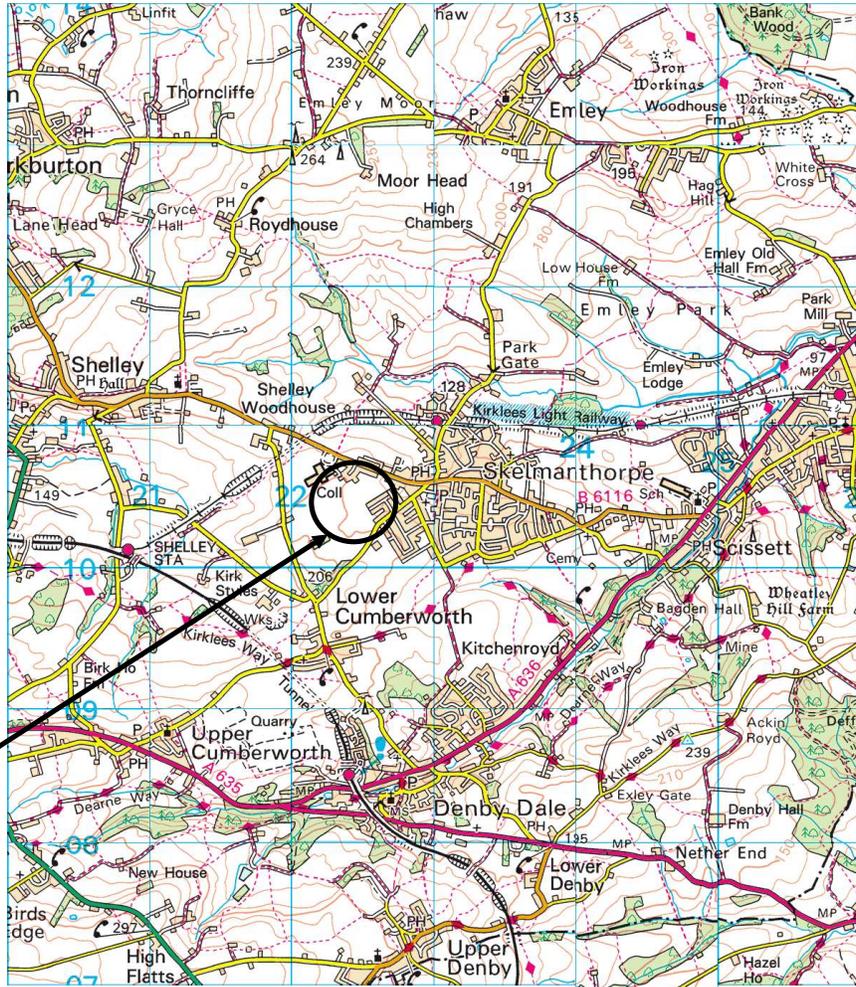
ATTACHMENT A

DRAWINGS



Site Location Plan

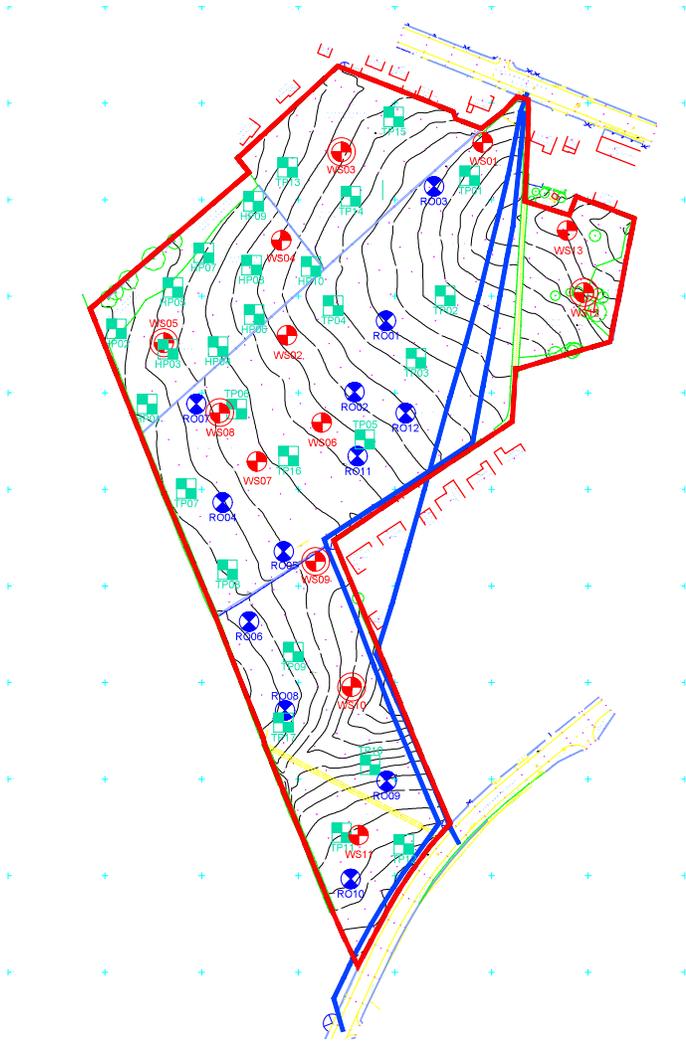
Contract Number	C7844
Contract	Cumberworth Road Skelmanthorpe
Client	Persimmon Homes West Yorkshire



THE SITE

Reproduced from the Ordnance Survey 1:50,000 scale Landranger® map with the permission of The Controller of Her Majesty's Stationary Office, © Crown Copyright. All rights reserved.
 Sirius Geotechnical Ltd, Suite 2, Russel House, Mill Road, Langley Moor, Durham DH7 8HJ.
 Licence No. 100042005

Scale	1:50,000	
Drawn by	ZP	Approved GH
Drawing Number	C7844/01	



NOTES

- Site Boundary as taken from proposed planning layout, dated April 2016
- Approximate position of services
- TP Trial Pit
- WS Window Sample Borehole
- Window Sample Borehole (With Monitoring Well)
- RO Rotary Openhole Borehole
- HP Hand Dug Pit

REVISION	BY	DATE
0	For Information	SM 08/05/16
A	>>	>> >>
B	>>	>> >>
C	>>	>> >>
D	>>	>> >>

SIRIUS
 GEOTECHNICAL LTD
 438/3 Park Approach,
 Thorne Park,
 Leeds
 LS15 8GB
www.siriusgeotech.com
 TEL: 0113 284 9950
 FAX: 0113 284 9952

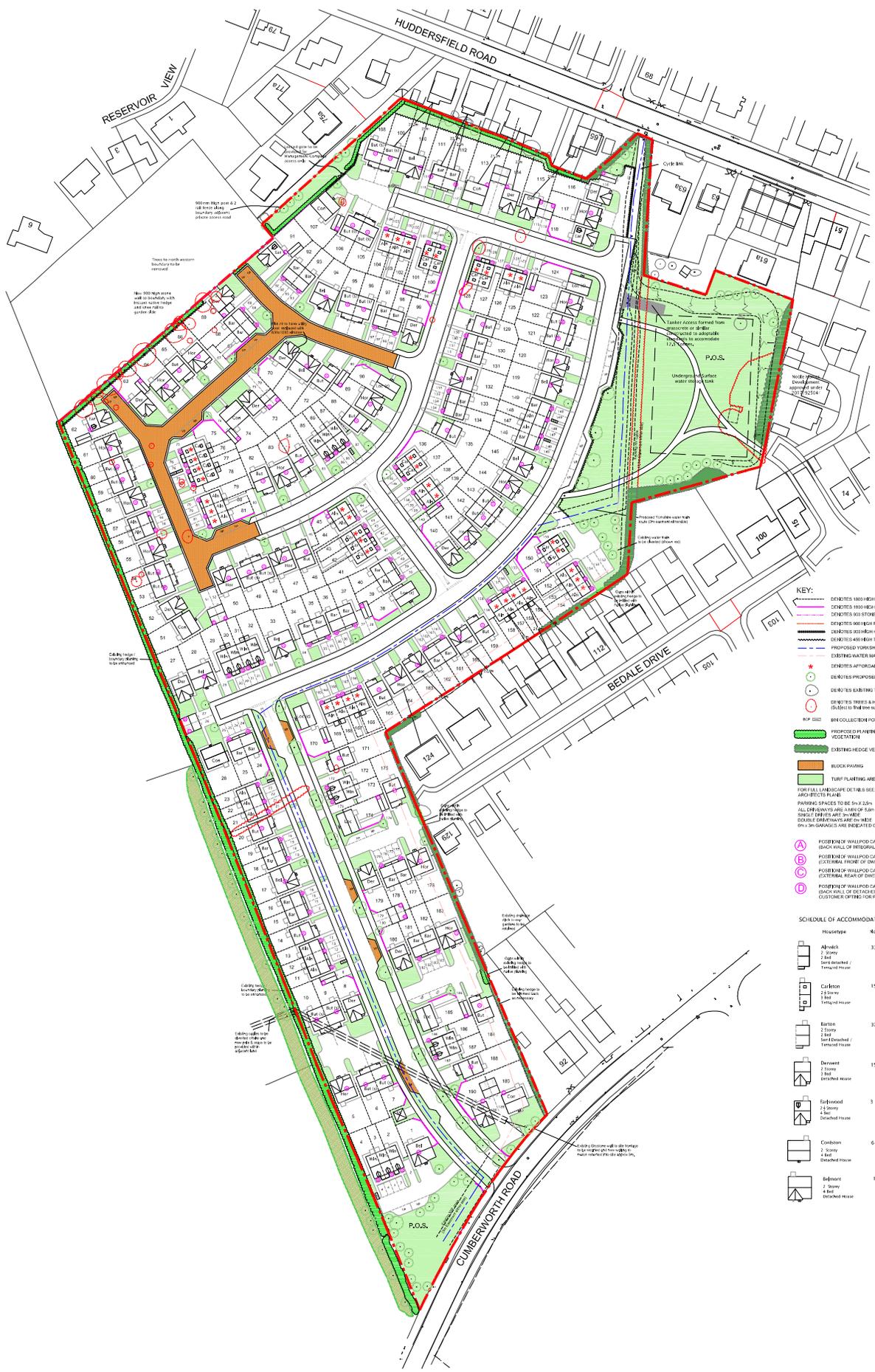


CLIENT
**Persimmon Homes
 West Yorkshire**

SITE
**Land off Cumberworth Road,
 Skelmanthorpe**

DRAWING TITLE
**Exploratory Hole
 Location Plan**

DRAWING NO. E7848/04	REVISION NO. 0
DRAWN BY SM	APPROVED BY OH
DATE May 2016	SCALE 1:2000
	PAPER SIZE A3



- KEY:**
- DENOTES 100 HIGH CLOSE BOARDED FENCE
 - DENOTES 100 HIGH WOODEN WALL FENCE
 - DENOTES 500 STONE WALL TO BOUNDARY
 - DENOTES 500 HIGH POST AND RAIL FENCE
 - DENOTES 500 HIGH WOOD TOP BOARDING
 - DENOTES 400 HIGH TIMBER FENCE RAIL
 - PROPOSED YORKSHIRE WATER MAIN ROUTE
 - EXISTING WATER MAIN TO BE CHANGED
 - DENOTES APPROXIMATE HOUSING
 - DENOTES PROPOSED TREES
 - DENOTES BUILDING TREES TO BE REMOVED (Subject to tree survey)
 - DENOTES TREES & HEDGES TO BE RETAINED (Subject to tree survey)
 - BIK COLLECTION POINT
 - PROPOSED PLANTING FOR ENHANCEMENT OF EXISTING VEGETATION
 - EXISTING HEDGE VEGETATION TO BE RETAINED
 - BLOCK PAVING
 - TURF PLANTING AREA

FOR FULL LANDSCAPE DETAILS SEE LANDSCAPE AND SITE PLAN
 PARKING SPACES TO BE 5m x 2m
 ALL DRIVEWAYS AND A WALK OF 50m LONG
 DOUBLE DRIVEWAYS ARE 6m WIDE
 5m x 3m DRIVEWAYS ARE INDICATED ON PLAN

- (A) POSITION OF WALLPOD CAR CHARGING POINT (BACK WALL OF INTEGRAL ATTACHED GARAGE)
- (B) POSITION OF WALLPOD CAR CHARGING POINT (EXTERNAL FRONT OF DWELLING)
- (C) POSITION OF WALLPOD CAR CHARGING POINT (EXTERNAL REAR OF DWELLING)
- (D) POSITION OF WALLPOD CAR CHARGING POINT (BACK WALL OF DETACHED GARAGE - SUBJECT TO CUSTOMER OF THE CAR POWER TO GARAGE.)

SCHEDULE OF ACCOMMODATION PERMISSION

House type	No.	House type	No.
Alphaleth 2 Storey 2 Bed Semi detached / Terraced House	33	Buttermere 2 Storey 2 Bed Detached House	16
Carlton 2 Storey 3 Bed Terraced House	15	Buttermere semi 2 Storey 2 Bed Semi Detached	20
Barton 2 Storey 2 Bed Semi Detached / Terraced House	32	Widemere 2 Storey 2 Bed Semi Detached / Terraced House	14
Derwent 2 Storey 3 Bed Detached House	15	Lockwood Corner 2 Storey 2 Bed Detached House	4
Lockwood 2 Storey 2 Bed Detached House	3	Lockwood 2 Storey 2 Bed Detached House	2
Coomb 2 Storey 4 Bed Detached House	6	Horseshoe 2 Storey 4 Bed Detached House	20
Belmont 2 Storey 4 Bed Detached House	10		
			Total = 190

Rev A = 20.09.19 - SAC
 Additional drawing added to match permission plan
 Rev B = 20.09.19 - SAC
 Additional B&C drawings added to plans 105-108 & extra room
 for storage added to plan 187-190
 Rev C = 20.09.19 - SAC
 Layout revised following planning comments, electrical and
 drainage added to plans 105-116
 Rev D = 20.09.19 - SAC
 Layout updated following engineering & landscaping
 designs
 Rev E = 20.09.19 - SAC
 Plans 107 & 108 revised following Landscape architects
 comments. Footpath added to P.O.S.
 Rev F = 20.09.19 - SAC
 Revised drawing following planning comments.
 House types updated to new Permission range. Glass
 vergers added to Rural entrance, water main amended.
 Carport amended.
 Rev G = 20.09.19 - SAC
 House name list updated to R18
 Rev H = 20.09.19 - SAC
 Water & Drainage Blocks updated to R18 standard
 Rev I = 20.09.19 - SAC
 Rev C, 20.11.19 - R18
 Site boundary line and plans 107-108 gates amended
 Rev B = 20.11.19 - R18
 Notes amended to per SAC comment #245 105-108 amended
 Rev A = 14.11.19 - SAC
 Layout amended following internal discussion

PERSIMMON
 Together, we make a home

Proposed Development
 CLUMBERWORTH ROAD
 SKELMANTHORPE

PROPOSED PLANNING LAYOUT

Scale: 1:500@A0

Drawing Number: PER-2018-001 Rev. 14

Drawn By: CJB

Drawn By: SAC

APRIL 2018



- NOTES**
- Site Boundary
 - ▨ Suitable Site Won Topsoil Stockpiles
 - ▨ Arsenic Impacted Topsoil (Temporary Stockpile Location)
 - Area of Relocated Arsenic Impacted Topsoil

- Notes**
1. This drawing should not be viewed in isolation from the accompanying report.
 2. All marked site features shown on this drawing are given for indicative purposes only. This drawing should not be used as a basis for determining proposed development layouts. Reference should be made to the accompanying report for commentary on the potential location of these features including coordinates if available and any further works required to locate features if required.

REVISION	BY	DATE
0	MF	01/05/25
A	>>	>> >>
B	>>	>> >>
C	>>	>> >>
D	>>	>> >>

SIRIUS
 GEOTECHNICAL LTD
 4245 Park Approach,
 Thorpe Park,
 Leeds
 LS15 8GB
www.siriusgeotech.com
 TEL: 0113 254 9990
 FAX: 0113 254 9992



CLIENT

Persimmon West Yorkshire

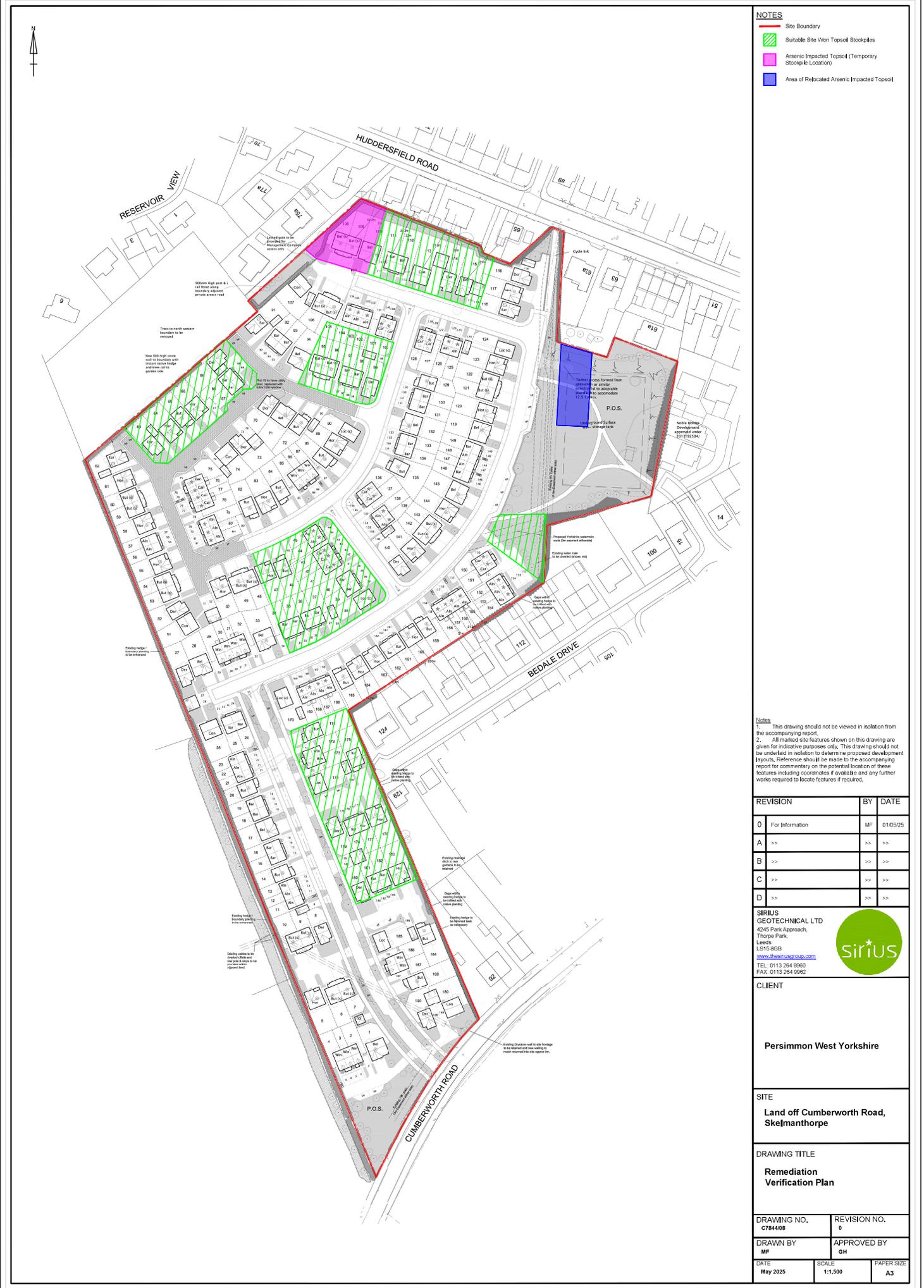
SITE

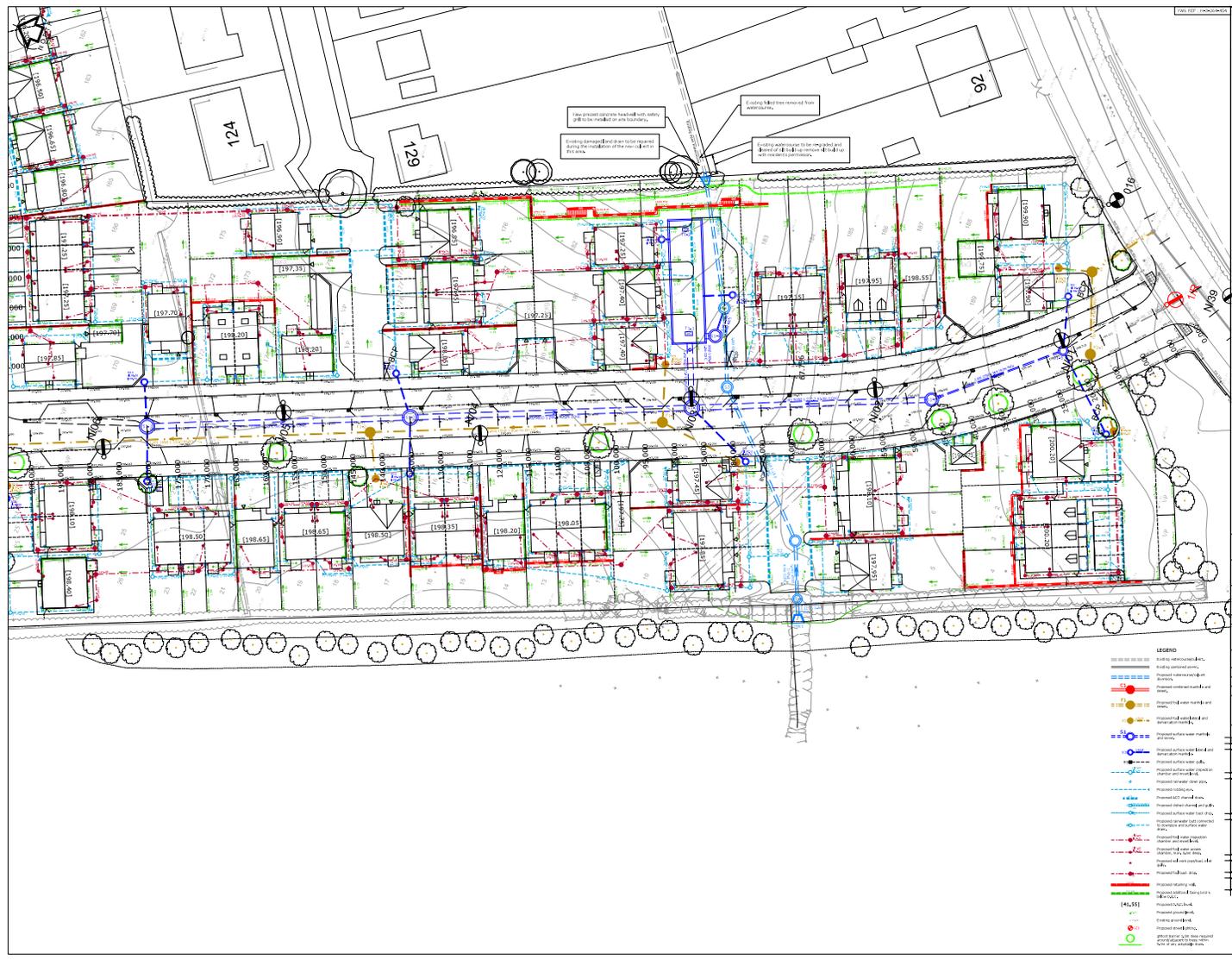
**Land off Cumberworth Road,
 Skelmanthorpe**

DRAWING TITLE

**Remediation
 Verification Plan**

DRAWING NO. C784408	REVISION NO. 0
DRAWN BY MF	APPROVED BY GH
DATE May 2025	SCALE 1:1,500
	PAPER SIZE A3





1. The Engineer shall be responsible for the design and construction of the proposed works in accordance with the relevant standards and specifications.
2. The Engineer shall ensure that the proposed works do not interfere with any existing services or structures.
3. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant health and safety regulations.
4. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant environmental regulations.
5. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant planning regulations.
6. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant building regulations.
7. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant fire regulations.
8. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant accessibility regulations.
9. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant equality regulations.
10. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant data protection regulations.
11. The Engineer shall ensure that the proposed works are carried out in accordance with the relevant general regulations.

NO.	REVISION	DATE	BY	CHECKED
1	Issue for tender	02/07/20	[Signature]	[Signature]
2	As issued	02/07/20	[Signature]	[Signature]

Perstimon Homes
West Yorkshire

Cumberworth Road,
Skelmanthorpe

1:200 Engineering Layout
Sheet 1 of 3

Date: 02/07/20
Drawing No: 4902-C-01-02
Scale: K Approval



ATTACHMENT B
PHOTOGRAPHS

SITE PHOTOGRAPHS - REMEDIATION VERIFICATION



Photo indicating stockpiled arsenic impacted topsoil, awaiting relocation.



**Photo indicating placement of arsenic impacted topsoil within area of proposed public open space
(located within eastern site area)**